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| (54) Title: SPECTACLE RESTRAINS <div data-bbox="626 1171 958 1503" data-label="Image"> </div> (57) Abstract <p>A pair of grips is provided for use on the side arms of a pair of spectacles so as to restrain the spectacles from slipping off the wearer when in use. Each grip (20) comprises a sleeve (50) made of resilient material for fitting onto the free end of the side arm with an interference fit, the passage (82) in the sleeve being star-shaped in cross section. The sleeve has a gripping area on its outside surface (70) defined by an array of resilient protuberances or pimples (80). The gripping area extends along the sleeve member and at least (40) percent or more of its periphery.</p> | | |

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SPECTACLE RESTRAINTS

The present invention relates to restraints or grips for restraining a pair of spectacles from slipping off a wearer when in use.

5 A wearer, such as a sportsman or manual worker, can perform movements which cause a conventional pair of spectacles to fall off and possibly break, such as when he moves his head to look down. To prevent this happening the side arms of spectacles may be bent so as more tightly to grip the wearer. This is not something that a wearer can easily do himself.
10 Moreover, if the arms are too tight against the head of the wearer, the pressure can cause discomfort to the wearer. If, however, the arms are too loose then the spectacles can easily fall off.

One solution to the problem has been to form the free ends of the side arms into semi-circular shaped hooks that fit around the ears of the wearer.
15 This, however, makes normal removal of the spectacles more difficult and they are not comfortable to wear.

Another solution is to provide friction pads which are attached to the nose pieces of spectacles and engage either side of the nose of the wearer. These, however, are not easy to attach and are still not particularly effective in
20 preventing the spectacles from falling off because the friction pads provide an insufficient gripping surface.

It is therefore an object of the present invention to provide a grip that alleviates the above mentioned problems.

According to the present invention there is provided a grip for use on a
25 side arm of a pair of spectacles so as to restrain the spectacles from slipping off the wearer when in use, characterized by a sleeve member made of resilient material for fitting onto the free end of the side arm with an interference fit and having a gripping area on its outside defined by an array of resilient protuberances or pimples, said gripping area extending along the
30 sleeve member and about a significant proportion of its periphery.

The significant proportion of the periphery of the gripping area may be, for example, at least 40 percent.

The grip is fitted to a side arm of a pair of spectacles so that the array of protuberances can bear against the head of the wearer. They may be
5 manually rotated about the side arm, and/or the position of the grip may be adjusted along the arm, to suit the wearer.

The passage in the sleeve member may be star-shaped in cross-section.

The grip is desirably made of pliable rubber with the protuberances being pimples which are formed integrally with the remainder of the sleeve
10 member.

In use, the grip is fitted over the side arm of a pair of spectacles and is adjusted so as to sit on and behind the ear of the wearer, where it is quite unobtrusive. It can be made more cosmetically acceptable by being given a flesh like colour.

15 The protuberances or pimples may be dome shaped. The sleeve member may be a cylindrical tubular member.

In normal use, two grips as described above will be fitted to a pair of spectacles with one grip on each side arm.

Embodiments of the present invention will now be described by way of
20 example with reference to the accompanying drawings, in which:-

Fig. 1 is an isometric view of a pair of spectacles with attached grips according to one embodiment of the invention;

Fig. 2 is an isometric view of one of the grips of Figure 1;

Fig. 3 is a side elevation of one of the grips shown attached to the free
25 end of a side arm of a pair of spectacles;

Fig. 4 is a sectional view along the line 4-4 of Fig. 3; and

Figs. 5 and 6 are similar to Figs. 2 and 4 and show another embodiment of the invention.

Referring to Fig. 1 of the accompanying drawings, a pair of spectacles
30 10 is shown having conventional side arms with grips 20 according to the

invention fitted to the side arms. Each side arm 30 has a free end formed by an inclined ear piece 40 to which the grip is fitted.

Referring to Fig. 2, each grip 20 comprises a sleeve 50 formed from a short length of cylindrical tubing. The sleeve has an outside surface 70 which
5 has a recessed specific gripping area defined by an array of small resilient dome-shaped protuberances or pimples 80 similar to those which are provided on resilient thimbles of the type used to facilitate the sorting of paper sheets. The tops of the pimples 80 are approximately coincident with the circumference of the sleeve. The gripping area extends along the full length of
10 the sleeve and about a predetermined arc of the circumference of the sleeve.

The passage 82 in the sleeve is star-shaped in cross-section, the points 84 of the star being formed between longitudinal ribs 86, which are triangular in cross-section, extending inwardly from the surface of the passage.

Referring to Figs. 3 and 4, the sleeve 50 is moulded in one piece of a
15 resilient material, preferably firm rubber. The inside of the sleeve is dimensioned so that there is an interference fit between at least some of the ribs 86 and the inclined ear piece 40. The ribs resist rotation of the grip 20 about the ear piece. However, a person can manually rotate the sleeve about the ear piece, overcoming the resistance of the ribs, and/or adjust the position
20 of the sleeve along the ear piece to suit the wearer.

When the spectacles 10 are being worn, the attached grips 20 are rotated into positions about the inclined ear pieces 40 so that the gripping areas faces towards and engage the side of the wearer's head. They frictionally engage opposite sides of the wearer's head to restrain the
25 spectacles from falling off as a result of movement on head position.

In a preferred embodiment each grip 20 is about 20mm to 25mm long with an outside diameter of about 8mm. The size of these outside diameter helps make the spectacles feel comfortable to wear on the ears. The points 84 of the star-shaped sleeve interior 82 are formed to approximately touch the
30 circumference of a circle with a diameter of about 5mm. The pimples 80 of

the gripping area are about 1mm to 2mm high and juxtaposed pimples are separated by about the same distance as the height. It is found that satisfactory restraint can be achieved with an array of pimples in a gripping area that covers at least 40 percent of the outside surface 70 of the sleeve.

- 5 The rubber material of the sleeve 50 helps make the spectacles feel comfortable to wear on the ears. In this regard, the pimples 80, as well as producing grip, also provide a cushioning effect.

 The grips 20 can be easily kept clean by removing them from the ear pieces 40 and washing or wiping them. They can also be washed or wiped
10 whilst remaining attached to the spectacles 10. Dirt may collect around the pimples 80 and it is easier to clean the pimples by rotating the grips about the ear pieces so that the pimples face out from the spectacles.

- When worn, the grips 20 on a pair of spectacles 10 are not visibly apparent as they are effectively hidden from view by the ears of the wearer.
15 The grips are made more cosmetically acceptable by being given a flesh like colour.

 An advantage of the grips 20 described over known devices is that the grips can be variably and rotationally adjusted, if so required. Thus, the wearer can choose the position of the grips and the amount of grip that is
20 required. The grips not only provide an excellent restraint but also eliminate/alleviate pain, discomfort, and the need for difficult adjustment of the side arms of a pair of spectacles.

- In another embodiment of the invention, shown in Figs. 5 and 6, similar to the first embodiment except where noted, each grip 20a comprises a sleeve
25 50a formed from a short length of cylindrical tubing in which the gripping area is not recessed in the outside surface 70a. The sleeve has a cylindrical inside surface 60 which is dimensioned so as to be an interference fit on the inclined ear piece 40. However, a person can manually rotate the sleeve about the ear piece and/or adjust the position of the sleeve along the ear piece to suit the
30 wearer. In a preferred embodiment, the grip has an inside diameter of about

4mm.

Whilst particular embodiments has been described above it will be understood that various modifications may be made without departing from the scope of the invention. For example, the passage in the sleeve may of any
5 suitable shape in cross-section to form an interference grip with an arm of the inclined ear piece. The grips may be positioned on the main part of the side arms as opposed to the inclined ear pieces. The pimples may be made of soft rubber for a tenacious grip. The dome shaped protuberances or pimples 80 may be of other shapes, such as ribs separated from each other by troughs.
10 Alternatively, these may be replaced by at least one continuous protuberance that winds or is of serpentine configuration throughout the gripping area.

In another alternative, the grips may be immovable, forming an integral part of the arms of the spectacles with the protuberances or pimples facing towards the wearer.

CLAIMS

1. A grip (20) for use on a side arm (30) of a pair of spectacles (10) so as to restrain the spectacles from slipping off the wearer when in use,
5 characterized by a sleeve member (50) made of resilient material for fitting onto the free end (40) of the side arm with an interference fit and having a gripping area on its outside defined by an array of resilient protuberances or pimples (80), said gripping area extending along the sleeve member and about a significant proportion of its periphery.
- 10 2. A grip as claimed in claim 1, wherein a significant proportion of the periphery of the gripping area is at least 40 percent.
3. A grip as claimed in claim 1 or 2, wherein the passage (82) in the
15 sleeve member (50) is star-shaped in cross-section.
4. A grip as claimed in any preceding claim, wherein the protuberances or pimples (80) are dome shaped.
- 20 5. A grip as claimed in any preceding claim, wherein the sleeve member (50) comprises a cylindrical tubular member.
6. A grip as claimed in any preceding claim, wherein the grip (20) comprises pliable rubber with the protuberances (80) being pimples which are
25 formed integrally with the remainder of the sleeve member (50).
7. A grip as claimed in any preceding claim, wherein the grip (20) has a flesh like colour.

8. A grip as claimed in any preceding claim, wherein the array of resilient protuberances or pimples comprises at least one continuous protuberance that winds or is of serpentine configuration throughout the gripping area.
- 5 9. A pair of spectacles (10) including two grips (20), each of which as claimed in any preceding claim, with one grip on each side arm (30) of the pair of spectacles.
- 10 10. A pair of spectacles as claimed in claim 9, wherein each grip (20) forms an integral part of each respective side arm (30).

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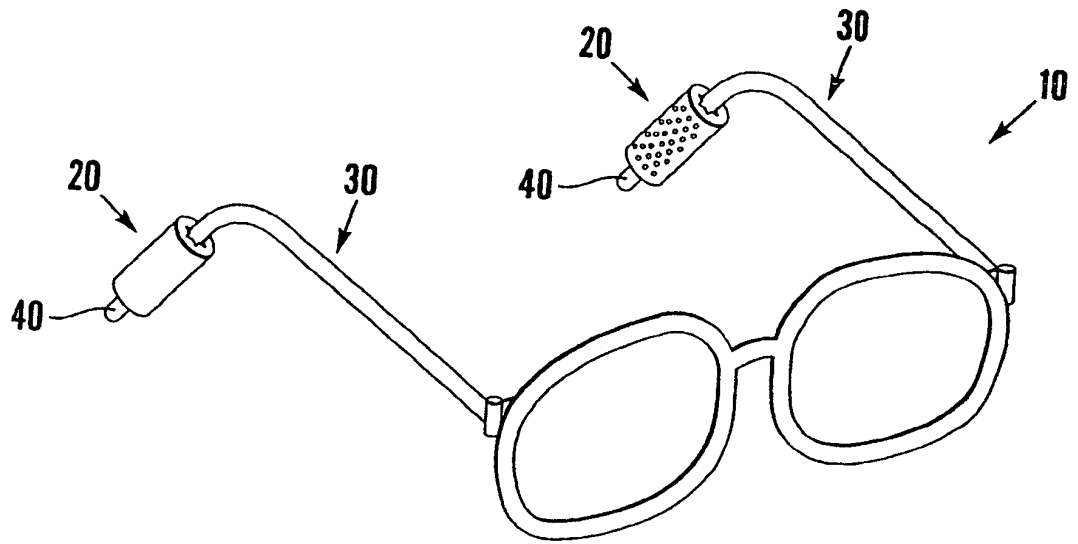


Fig. 1

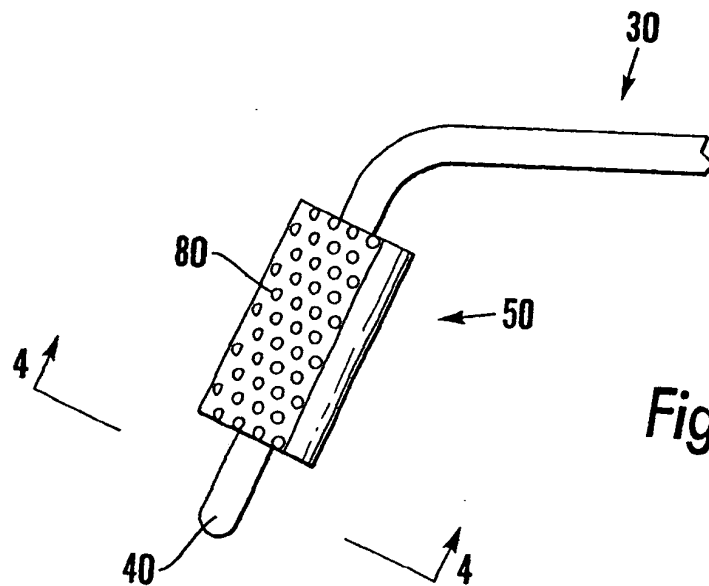


Fig. 3

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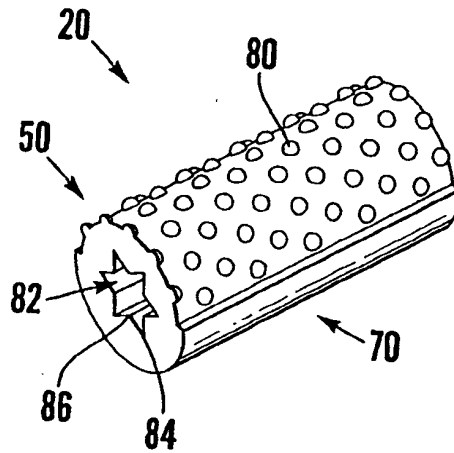


Fig. 2

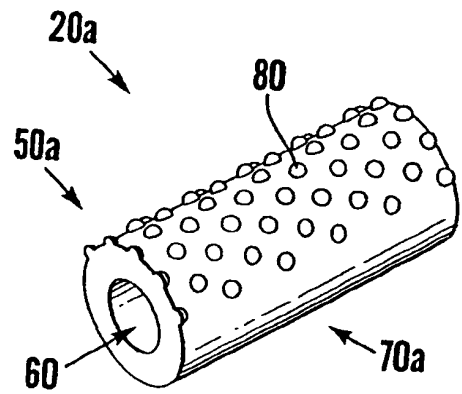


Fig. 5

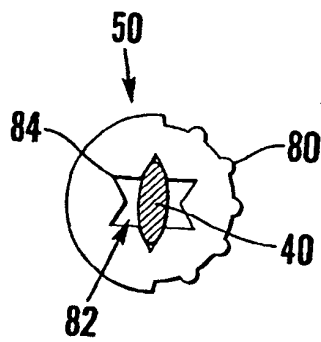


Fig. 4

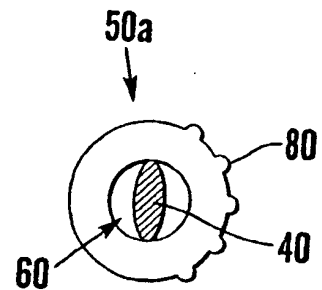


Fig. 6

INTERNATIONAL SEARCH REPORT

International Application No.

97/GB 99/03362

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G02C3/00 G02C5/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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IPC 7 G02C

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | US 4 662 729 A (DOBSON JOHNNIE M D) 5 May 1987 (1987-05-05) column 2, line 22 -column 3, line 3 --- | 1,4,6-9 |
| X | GB 1 372 713 A (BOYER J) 6 November 1974 (1974-11-06) page 1, line 49 -page 2, line 15 --- | 1,5,6,9 |
| X | WO 92 13289 A (SWANEK EDWARD J) 6 August 1992 (1992-08-06) page 5, paragraph 6 --- | 1,5,9,10 |
| X | EP 0 042 712 A (BLACKSTONE JOHN) 30 December 1981 (1981-12-30) page 12, line 5 -page 13 --- | 1,6,7,9, 10 |
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|----------|--|-----------------------|
| X | WO 91 07686 A (OAKLEY INC) 30 May 1991 (1991-05-30) page 4, line 17 - line 28 ---- | 1,5,9 |
| X | GB 647 864 A (S.D. LEE) 20 December 1950 (1950-12-20) page 1, line 68 -page 2, line 58 ---- | 1,6,9 |
| A | US 4 165 925 A (DONOVAN LEROY B) 28 August 1979 (1979-08-28) column 2, line 22 -column 3, line 3 ---- | 1-10 |
| A | WO 90 09609 A (MURRELL EDMOND E) 23 August 1990 (1990-08-23) page 10, line 17 -page 11, line 4 ---- | 1,3,9 |
| A | US 4 204 749 A (DAVIS JOHN A) 27 May 1980 (1980-05-27) column 4, line 62 -column 5, line 12 ----- | 1,4,9 |

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|---|--|
| US 4662729 A | 05-05-1987 | NONE | |
| GB 1372713 A | 06-11-1974 | FR 2109286 A BE 773660 A CA 961678 A CH 537026 A DE 2148477 A IT 938934 B LU 64033 A NL 7113351 A | 26-05-1972 10-04-1972 28-01-1975 29-06-1973 13-04-1972 10-02-1973 28-06-1972 11-04-1972 |
| WO 9213289 A | 06-08-1992 | AU 1165192 A CA 2036213 A | 27-08-1992 17-07-1992 |
| EP 0042712 A | 30-12-1981 | NONE | |
| WO 9107686 A | 30-05-1991 | US 5054903 A AU 650436 B AU 6892491 A CA 2045145 A,C DE 69020141 D DE 69020141 T EP 0455791 A ES 2073730 T JP 2689022 B JP 4503872 T US 5137342 A | 08-10-1991 23-06-1994 13-06-1991 21-05-1991 20-07-1995 01-02-1996 13-11-1991 16-08-1995 10-12-1997 09-07-1992 11-08-1992 |
| GB 647864 A | | NONE | |
| US 4165925 A | 28-08-1979 | NONE | |
| WO 9009609 A | 23-08-1990 | AU 5359490 A US RE34836 E US 5002381 A | 05-09-1990 24-01-1995 26-03-1991 |
| US 4204749 A | 27-05-1980 | NONE | |